Abstract

Spatial data mining, or knowledge discovery in spatial database, refers to the extraction of implicit knowledge, spatial relations, or other patterns not explicitly stored in spatial databases. Spatial data mining is the process of discovering interesting characteristics and patterns that may implicitly exist in spatial database. A huge amount of spatial data and newly emerging concept of Spatial Data Mining which includes the spatial distance made it an arduous task. Knowledge discovery in spatial databases is the extraction of implicit knowledge, spatial relations and discovery of interesting characteristics and patterns that are not explicitly represented in the databases. Co-location pattern discovery is the process of finding the subsets of features that are frequently located together in the same region. Spatial co-location patterns associate the co-existence of non-spatial features in a spatial neighborhood. The Previous methods of mining co-location patterns, converts neighborhoods of feature instances to item sets and applies mining techniques for transactional data to discover the patterns, combines the discovery of spatial neighborhoods with the mining process. It is an extension of a spatial join algorithm that operates on multiple inputs and counts long pattern instances. Previous works on discovering co-location patterns is based on participation index and
participation ratio. In this paper we address the problem of mining co-location patterns with a novel method called Mediod participation index. Our technique is an extension of maximal participation ratio and deploys the idea of K-medioids from clustering algorithms. As demonstrated by experimentation, our method yields significant performance improvements compared to previous approaches.

References


**Index Terms**

Computer Science  
Information Sciences

**Keywords**

Spatial Data Mining  
Association Rules  
Co-location Rules  
Participation Index  
Apriori Algorithm  
Participation Ratio